Amendments to the Claims

The following listing of claims supersedes all previous listings of claims in this matter.

1. – 70. (Cancelled).

71. (New) At least one self-steering apparatus fitting for use in a railroad car truck between a wheelset bearing and a sideframe pedestal, said self-steering apparatus fitting comprising at least one of:

(a) a bearing adapter for mounting to a casing of a bearing on a wheelset, said bearing adapter being for use in combination with at least one other fitting of the self-steering apparatus, said at least one other fitting including at least a pedestal seat; said bearing adapter having a rolling contact engagement surface for orientation facing away from the wheelset when installed; and said bearing adapter rolling contact engagement surface has a fore-and-aft arcuate profile permitting rolling contact rocking of the wheelset bearing lengthwise relative to the sideframe; and

(b) a pedestal seat mountable in a pedestal of a sideframe of the railroad car truck, said pedestal seat being for use in combination with at least one other fitting of the self-steering apparatus, said at least one other fitting including at least a bearing adapter; said pedestal seat having a rolling contact engagement surface for orientation toward the wheelset; and the pedestal seat rolling contact engagement surface has a fore-and-aft arcuate profile permitting rolling contact rocking of the wheelset bearing lengthwise relative to the sideframe.

72. (New) The self-steering apparatus fitting of claim 71 wherein said fitting is the bearing adapter of part (a).

73. (New) The self-steering apparatus fitting of claim 72 wherein said bearing adapter has axially spaced arches for seating on a bearing having an axis of rotation, and said bearing adapter rolling contact engagement surface is one of (a) a spherical surface; and (b) a surface having a curvature formed on a body of revolution having an axis parallel to the axis of the bearing.

74. (New) The self-steering apparatus fitting of claim 71 wherein said fitting is the pedestal seat of part (b).

75. (New) The self-steering apparatus fitting of claim 74 wherein said pedestal seat mounts in a sideframe, the sideframe having a long dimension defining a longitudinal axis, and said pedestal seat rolling contact engagement surface is one of (a) a spherical surface; and (b) a surface having a curvature formed on a body of revolution having an axis cross-wise to the longitudinal axis of the sideframe.

76. (New) The self-steering apparatus fitting of claim 71 wherein said rolling contact engagement surface having said fore-and-aft arcuate profile also has a cross-wise arcuate profile.

77. (New) A combination of a first fitting according to claim 71, and a mating second fitting having another rolling contact engagement surface orientable on installation to mate with said rolling contact engagement surface having said fore-and-aft arcuate profile, and, when installed in a railroad car truck and co-operatively engaged, said first fitting and said mating second fitting being operable to provide self-steering.

78. (New) The combination of claim 77 further including a third fitting, said third fitting being a resilient member mountable in co-operation with at least one of (a) said first fitting, and (b) said second fitting; and said third fitting being operable to urge said first and second fittings to a centered position relative to each other.

79. (New) A combination of the bearing adapter of part (a) of claim 71, and the pedestal seat of part (b) of claim 71, said bearing adapter and said pedestal seat being matingly engageable on installation to permit fore-and-aft rolling contact rocking therebetween.

80. (New) The combination of claim 79 wherein said pedestal seat and said bearing adapter are also engageable to rock laterally in rolling contact with respect to one another.

81. (New) The combination of claim 80 wherein the rolling contact engagement surface of at least one of (i) said bearing adapter and (ii) said pedestal seat is formed on a compound surface.

82. (New) The combination of claim 80 wherein any said rolling contact engagement surface includes a spherical portion.

83. (New) The combination of claim 79 including at least a third fitting, said third fitting being a resilient member mountable to urge said bearing adapter and said pedestal seat to a centered position relative to each other.

84. (New) The combination of claim 83 wherein the bearing adapter has an end wall, and said third fitting is formed to seat between that end wall and a thrust lug of a sideframe pedestal.

85. (New) The combination of claim 83 wherein the bearing adapter has at least one end wall, and said third fitting has a first portion for seating adjacent said end wall, and a second portion at least partially overlying said bearing adapter, said second portion having a relief formed therein to accommodate rocking engagement of said bearing adapter with said pedestal seat.

86. (New) The self-steering apparatus fitting of claim 71 wherein said fitting is one of:

(i) the bearing adapter of part (a), said bearing adapter having a pair of spaced apart arches for seating on a bearing casing, and said rolling contact engagement surface is a rocker having both lengthwise and cross-wise radii of curvature; and.

(ii) the pedestal seat of part (b), and said rolling contact engagement surface is a rocker having both lengthwise and cross-wise radii of curvature.

87. (New) The self-steering apparatus fitting of claim 71 wherein said fitting is the bearing adapter of part (a) for seating on a roller bearing that has first and second axially spaced apart roller bearing races enclosed within a casing, and said bearing adapter has first and second arches engageable with first and second end regions of the bearing casing, the bearing races being straddled between the arches; and a land for engaging the casing, said land extending between the arches and being relieved at locations above top dead center of the bearing races.

88. (New) In combination, (i) the fitting of claim 71 wherein said fitting is the bearing adapter of part (a); and (ii) a roller bearing, the bearing adapter being for seating on the roller bearing; wherein said bearing has first and second axially spaced apart roller bearing races enclosed within a casing, and said bearing adapter has first and second arches engageable with first and second end regions of the bearing casing, the bearing races being straddled between the arches; said bearing adapter has a land for engaging the casing, said land extending between the arches, said land having at least one relief, said bearing adapter being mounted on said bearing with said at least one relief being positioned axially to sit abreast of, and to overlie, top dead center of at least one of said bearing races.

89. (New) A combination of a bearing adapter, a pedestal seat, and a resilient pad for use with the bearing adapter; at least one of (a) said bearing adapter and (b) said pedestal seat being the fitting according to claim 71, wherein the bearing adapter and the pedestal seat have respective

mutually engageable rolling contact surfaces, said resilient pad has a first portion for engaging a first end of the bearing adapter, a second portion for engaging a second end of the bearing adapter, and a medial portion between said first and second end portions, said medial portion being formed to accommodate mating engagement of the rocker members.

90. (New) At least one of:

(i) a bearing adapter for a railroad car truck, said bearing adapter having a pair of arches for seating on the casing of a bearing, said arches being spaced on an axis, and an upwardly facing rolling contact surface for engagement with a mating rolling contact rocking element, said bearing adapter rolling contact surface having a curvature that is one of (a) spherical; and (b) formed about an axis of a body of revolution, said body of revolution having an axis of revolution parallel to said axis of said arches; and

(ii) a pedestal seat mountable in a sideframe pedestal of a railroad car truck sideframe, the sideframe having a long dimension defining a longitudinal axis, said pedestal seat having a rolling contact surface for engagement with a mating rolling contact element, said pedestal seat rolling contact surface having a curvature that is one of (a) spherical; and (b) formed about an axis of a body of revolution, said body of revolution having an axis of revolution cross-wise to said longitudinal axis.

91. (New) Both the bearing adapter of part (i) of claim 90 and the pedestal seat of part (ii) of claim 90 wherein said bearing adapter and said pedestal seat mate in rolling contact.

92. (New) The subject matter of claim 90 in combination with a railroad car truck wheelset bearing.

93. (New) The subject matter of claim 90 in combination with a resilient centering member mounted to urge that subject matter to a neutral at rest position.

94. (New) A bearing adapter according to part (i) of claim 90 in combination with a railroad car truck wheelset bearing, the bearing having a pair of axially spaced apart, circumferentially extending bearing races contained within a casing, and the bearing adapter having at least one underside relief formed therein, said bearing adapter mating with said casing in use with said relief overlying top dead center of at least one of said bearing races.

95. (New) A railroad car truck having:

a transversely extending bolster having first and second ends sprung on respective first and second spring groups of respective first and second sideframes;

said truck having a gross weight on rail capacity that is one of (a) as great as an AAR "70 ton special", and (b) greater than an AAR "70 ton special";

said truck having first and second sets of friction dampers mounted at each of said first and second ends of said bolster to work between said bolster and said sideframes;

each of said sets of dampers including a first damper and a second damper; each of said spring groups includes a first spring to drive said first damper, and a second spring to drive said second damper;

said first damper including a first damper wedge, said first damper wedge having a primary angle in the range of 35 to 55 degrees;

said second damper including a second damper wedge, said second damper wedge having a primary angle in the range of 35 to 55 degrees;

each of said dampers having a friction surface for sliding engagement with a sideframe column, said friction surfaces having associated coefficients of static and dynamic friction, and, during motion therebetween said co-efficients being in the range of 0.10 to 0.45;

in operation each of said sets of friction dampers exerts a first friction force, F_1, when the respective end of said bolster associated therewith moves upwardly relative to the respective sideframe, and exerts a second friction force, F_2, when the respective end of said bolster associated therewith moves downwardly relative to the respective sideframe, and, when fully laden, a ratio of the magnitudes of F_1:F_2 lies in the range of 2/3 to 3/2.

96. (New) The railroad car truck of claim 95 wherein the arithmetic sum of the magnitudes of F_1 and F_2 is in the range of 3700 to 5800 lbs.

97. (New) The railroad car truck of claim 95, selected from the group of railroad car trucks consisting of those trucks in which:

(a) said dampers are steel faced, and the arithmetic sum of the magnitudes of F_1 and F_2 is in the range of 3700 to 4100 lbs.;

(b) said dampers are steel faced, and the arithmetic sum of the magnitudes of F_1 and F_2 is in the range of 4000 to 5000 lbs.;

(c) said dampers have non-metallic friction faces, and the arithmetic sum of the magnitudes of F_1 and F_2 is in the range of 4000 to 5500 lbs.; and

(d) said dampers have non-metallic friction faces, and the arithmetic sum of the magnitudes of F_1 and F_2 is in the range of 5400 to 5800 lbs.

98. (New) The railroad car truck of claim 95 wherein said sets of dampers each include said first damper wedge, said second damper wedge, and a third damper wedge, said first damper wedge being mounted transversely outboard of said second damper wedge, and said spring groups each include said first spring to drive said first damper wedge, said second spring to drive said second damper wedge, and a third spring to drive said third damper wedge.

99. (New) The railroad car truck of claim 95 wherein said dampers have a primary damper angle in the range of 40 to 50 degrees and a non-metallic friction face.

100. (New) The railroad car truck of claim 95 wherein a ratio of the magnitudes of F_1:F_2 lies in the range of 3/4 to 5/4.

101. (New) The railroad car truck of claim 95 wherein the magnitudes of F_1 and F_2 are substantially the same.

102. (New) The railroad car truck of claim 100 wherein the arithmetic sum of the magnitudes of F_1 and F_2 for the first set of dampers is in the range of 4000 – 5000 lbs.

103. (New) The railroad car truck of claim 95 wherein the magnitude of the force when the bolster end is moving downward, F2, is less than 3000 lbs.

104. (New) The railroad car truck of claim 95 wherein said sets of dampers each includes four damper wedges, said spring groups each includes four corner springs, said four corner springs being mounted to drive said four damper wedges.

105. (New) The railroad car truck of claim 95 wherein said dampers are substantially stick-slip free in operation.

106. (New) The railroad car truck of claim 95 wherein said static and dynamic co-efficients of friction are within 20 % of each other.

107. (New) The railroad car truck of claim 106 wherein said co-efficients of static friction and dynamic friction are substantially the same.

108. (New) The railroad car truck of claim 106 wherein said co-efficients lie in the range 0.2 to 0.35.

109. (New) The railroad car truck of claim 95 wherein at least one of said friction dampers includes a damper wedge having a primary angle of between 40 and 50 degrees.

110. (New) The railroad car truck of claim 95 wherein said friction dampers have both primary and secondary damper wedge angles.

111. (New) The railroad car truck of claim 110 wherein each of said damper groups includes four dampers, two of said dampers having left handed secondary angles, and two of said dampers have right handed secondary angles.

112. (New) The railroad car truck of claim 95 wherein said friction dampers are independently sprung.

113. (New) The railroad car truck of claim 95 wherein said truck is a self-steering truck.

114. (New) The railroad car truck of claim 113 wherein said truck includes rolling contact rocker fittings mounted to permit said truck to self-steer.

115. (New) The railroad car truck of claim 113 including bi-directional rocker fittings operable to permit said truck to self-steer and to permit said sideframes to rock sideways.

116. (New) The railroad car truck of claim 95 wherein said truck is free of unsprung lateral bracing between said sideframes.

117. (New) The railroad car truck of claim 95 wherein said bolster has a range of lateral motion relative to said sideframes of at least ¾ inches to either side of a neutral position.

118. (New) The railroad car truck of claim 95, said truck having a rated load limit for gross weight on rail, and wherein said truck has a lateral stiffness, said lateral stiffness including a lateral swinging stiffness, $k_{pendulum}$, and a stiffness of main spring groups in lateral shear, k_{shear}, said stiffnesses being in series, and said lateral swinging stiffness being of lesser magnitude than said lateral shear stiffness when said truck is operating at its rated load limit.

119. (New) The railroad car truck of claim 95 including a damper and spring combination lying within 20 % of an envelope defined by an upper boundary and a lower boundary, said upper and lower boundaries being defined by the respective equations $\mathbf{k_{damper}} = 2.41(\mathbf{theta_{wedge}})^{1.76}$, and $\mathbf{k_{damper}} = 1.21(\mathbf{theta_{wedge}})^{1.76}$, where $\mathbf{k_{damper}}$ is the side spring stiffness under each damper in lbs/in/damper, and $\mathbf{theta_{wedge}}$ is the associated primary wedge angle, in degrees.

120. (New) The railroad car truck of claim 119 wherein said damper of said damper and spring combination has a friction face that is one of (a) an iron friction face; and (b) a steel friction face.

121. (New) The railroad car truck of claim 95 including a damper and spring combination lying within 20 % of an envelope defined by an upper boundary and a lower boundary, said upper and lower boundaries being defined by the respective equations $\mathbf{k_{damper}} = 4.84(\mathbf{theta_{wedge}})^{1.64}$ and $\mathbf{k_{damper}} = 2.42(\mathbf{theta_{wedge}})^{1.64}$ where $\mathbf{k_{damper}}$ is the side spring stiffness under each damper in lbs/in/damper, and $\mathbf{theta_{wedge}}$ is the associated primary wedge angle, in degrees.

122. (New) The railroad car truck of claim 121 wherein said damper of said damper and spring combination has a non-metallic friction face.

123. (New) A railroad car truck comprising:

a bolster, a first sideframe, a second sideframe, a first spring group, a second spring group, a first wheelset and a second wheelset;

said bolster extending cross-wise between said sideframes;

said bolster having a first end supported on said first spring group, said first spring group being seated on said first sideframe;

said bolster having a second end supported on said second spring group, said second spring group being seated on said second sideframe;

said first and second sideframes being seated on said wheelsets;

a first group of friction dampers being mounted to work between said first end of said bolster and said first sideframe;

a second group of friction dampers being mounted to work between said second end of said bolster and said second sideframe;

said first and second groups of friction dampers having sliding friction faces mounted to work against wear plates as said first end of said bolster moves relative to said first sideframe;

said first and second groups of friction dampers each including respective first and second dampers, said first and second friction dampers being independently driven;

said first friction damper being laterally inboard of said second friction damper; and

said dampers having a co-efficient of static friction, u_s, and a co-efficient of dynamic friction, u_k, those coefficients being within 20 % of one another.

124. (New) The railroad car truck of claim 123 wherein said coefficients of static and dynamic friction are substantially the same.

125. (New) The railroad car truck of claim 123 wherein said friction faces of said first and second friction dampers have a substantially stick-slip free friction interaction with said respective wear plates.

126. (New) The railroad car truck of claim 123 wherein both u_k and u_s lie in the range of 0.10 to 0.45.

127. (New) The railroad car truck of claim 123 wherein both u_k and u_s lie in the range of 0.20 to 0.35.

128. (New) The railroad car truck of claim 123 wherein one of said sliding friction faces is non-metallic.

129. (New) The railroad car truck of claim 123 wherein said first friction damper includes a first friction damper wedge, and said friction damper wedge has a sloped face for interaction with an accommodation of said bolster, said sloped face having a coefficient of friction lying in a range that is one of (a) 0.08 to 0.15; and (b) 0.12 to 0.20.

130. (New) The railroad car truck of claim 123 wherein said first friction damper includes a friction damper wedge, said friction damper wedge has a primary damper wedge angle, and said primary damper wedge angle lies in the range of 35 to 55 degrees.

131. (New) The railroad car truck of claim 130 wherein said primary damper wedge angle lies in the range of 40 to 50 degrees.

132. (New) The railroad car truck of claim 123 wherein each of said spring groups includes a first corner spring, a second corner spring, a third corner spring and a fourth corner spring, said first corner spring being offset laterally inboard of said second corner spring, said third corner spring being laterally offset inboard of said fourth corner spring, and said first and second corner springs being longitudinally offset from said third and fourth corner springs respectively; and said first friction damper is mounted over said first corner spring and said second friction damper is mounted over said second corner spring.

133. (New) The railroad car truck of claim 132 wherein each of said corner springs has another spring nested therewithin.

134. (New) The railroad car truck of claim 123 wherein said first spring group has a total vertical spring rate k_v, and said dampers of said respective first group of friction dampers are driven by springs having a total spring rate k_d, wherein the ratio k_d/k_v is greater than 20 %.

135. (New) The railroad car truck of claim 123 wherein said ration of k_d/k_v lies in a range that is one of (a) 20 % to 35 %; and (b) 25 % to 50 %.

136. (New) The railroad car truck of claim 123 wherein:

said bolster has accommodations formed therein and said friction dampers each seat in a respective one of said accommodations;

said sideframes each include an upper member, a lower member and a pair of sideframe columns, and a sideframe window is defined therebetween;

said sideframe columns have said wear plates mounted thereto; and

said wear plates are mounted square to said bolster and span said first and second dampers.

137. (New) The railroad car truck of claim 123 wherein said bolster is movable within a range of lateral motion relative to said sideframes, said range being bounded by hard stop abutments.

138. (New) The railroad car truck of claim 123 wherein said bolster has bolster gibs mounted thereto at said first end thereof, said bolster gibs being spaced laterally to bracket said first sideframe and to define a range of lateral motion of said bolster relative to said first sideframe.

139. (New) The railroad car truck of claim 137 wherein said range of lateral motion is at least ¾" to either side of a neutral position.

140. (New) The railroad car truck of claim 123 wherein said first sideframe is mounted to swing laterally on said wheelsets, and said sideframe has a lateral swinging pendulum stiffness in the range of 0.95 to 2.6 lbs per radian per pound of weight borne by the pendulum.

141. (New) The railroad car truck of claim 123, said truck having a rated load, wherein said first and second sideframes are swingingly mounted on said wheelsets, said truck having a first component of resistance to lateral deflection of said bolster relative to said sideframes associated with sideways swinging of each of said sideframes, k_P, and a second component of resistance to lateral deflection of said bolster relative to said sideframes associated with lateral shear in said spring groups, respectively, k_{SS}, and, at said rated load, k_P is softer than k_{SS}.

142. (New) The railroad car truck of claim 123 wherein said sideframes are self-steeringly mounted to said wheelsets.

143. (New) The railroad car truck of claim 123 wherein said sideframes have respective pedestal mounts, and said truck has rolling contact rockers mounted at said pedestal mounts to permit longitudinal rocking of said wheelsets relative to said pedestal mounts, said rolling contact rockers being operable to permit said truck to self-steer.

144. (New) The railroad car truck of claim 143 wherein said rockers have a first curvature permitting fore-and-aft rocking, and a second curvature permitting sideways swinging of said sideframes.

145. (New) The railroad car truck of claim 144 wherein said rolling contact rockers include a first surface and a second surface, and one of

(a) at least a portion of said first surface is spherical;
(b) at least a portion of said second surface is spherical;
(c) at least a portion of said second surface is flat;
(d) said second surface is also a surface of compound curvature; and
(e) said first and second surfaces are rockingly matable saddle shaped surfaces.

146. (New) The railroad car truck of claim 123 wherein said truck has a rated load capacity that is one of (a) as great as an AAR 70 Ton Special; and (b) greater than an AAR 70 Ton Special.

147. (New) The railroad car truck of claim 123 wherein said truck is free of unsprung lateral cross-bracing.

148. (New) The railroad car truck of claim 125 wherein:

said spring groups each have four corner springs, each of said corner springs having another spring nested therewithin;

each friction damper includes a friction damper wedge having a primary damper angle in the range of 35 to 55 degrees;

each sideframe has sideframe columns and friction wear plates mounted to said sideframe columns, said friction wear plates spanning said first and second friction dampers; and

said bolster has gibs mounted thereto, said gibs being spaced to bracket said sideframes and to define end stops of a range of lateral motion of said bolster relative to said sideframes, said range being at least ¾ inches to either side of a neutral position.

149. (New) A self-steering three piece railroad car truck, said truck comprising:

a truck bolster mounted transversely between a pair of first and second sideframes, said truck bolster having first and second ends, each of said first and second ends of said truck bolster being resiliently mounted to a respective one of said first and second sideframes;

wheelsets self-steeringly mounted in said sideframes;

a first set of dampers mounted to work between said first end of said truck bolster and said first sideframe, and a second set of dampers mounted to work between said second end of said truck bolster and said second sideframe;

said first set of dampers including a first damper and a second damper, said first damper being mounted transversely inboard of said second damper,

said first and second dampers each having a bearing surface mounted to work slidingly against a corresponding mating surface at a friction interface when said truck bolster moves relative to said sideframes;

said first and second dampers being independently sprung.

150. (New) The railroad car truck of claim 149 wherein said bearing surfaces of said respective first and second dampers being substantially stick-slip free in operation.

151. (New) The railroad car truck of claim 149 wherein said bearing surfaces of said first and second dampers of said self-steering truck are non-metallic.

152. (New) The railroad car truck of claim 149 wherein said first set of dampers includes third and fourth dampers, and said first, second, third and fourth dampers are arranged in a four-cornered arrangement.

153. (New) The railroad car truck of claim 149 wherein one of said dampers includes a damper wedge, said bearing surface being a first face of said damper wedge, said damper wedge having a second face inclined relative to said first face, said second face being for engagement with a corresponding inclined accommodation in said truck bolster, a primary damper angle being defined between said first face and said second face, said primary damper angle being at least as great as 35 degrees.

154. (New) The railroad car truck of claim 149 wherein there is a co-efficient of static friction between said bearing surface and said mating surface, a co-efficient of dynamic friction between said bearing surface and said mating surface, and said co-efficients of static friction and dynamic friction have respective magnitudes within 20 % of each other.

155. (New) The railroad car truck of claim 149 wherein there is a co-efficient of static friction between said bearing surface and said mating surface, a co-efficient of dynamic friction between said bearing surface and said mating surface, and said co-efficients of friction are substantially equal.

156. (New) The railroad car truck of claim 154 wherein said co-efficients of friction lie in the range 0.2 to 0.35.

157. (New) The railroad car truck of claim 149 wherein said truck has a sideframe pedestal to bearing adapter interface assembly that includes a rocker operable to permit lateral rocking of said sideframes and to permit self-steering of said truck.

158. (New) The railroad car truck of claim 149 wherein said truck has a sideframe pedestal to bearing adapter interface assembly that includes a self-steering member, and a member operable to permit lateral swinging of the sideframes.

159. (New) The railroad car truck of claim 158 wherein said sideframe pedestal to bearing adapter interface assembly includes at least one resilient element.

160. (New) The railroad car truck of claim 149 wherein said first damper exerts a first friction force, F_1, when said truck bolster is moving upward relative to the sideframe, and a second friction force, F_2, when said truck bolster is moving downward relative to the sideframe, and said first and second friction forces are of generally corresponding magnitude.

161. (New) The railroad car truck of claim 160 wherein the ratio of the magnitudes of F_1:F_2 lies in the range of 2/3 to 3/2.

162. (New) The railroad car truck of claim 160 wherein the ratio of the magnitudes of F_1:F_2 lies in the range of 3/4 to 5/4.

163. (New) The railroad car truck of claim 160 wherein the arithmetic sum of the magnitudes of F_1 and F_2 for the first set of dampers is in the range of 4000 – 5000 lbs.

164. (New) The railroad car truck of claim 160 wherein said first damper has a primary wedge angle of greater than 35 degrees.

165. (New) The railroad car truck of claim 149, said truck having a rated load limit for gross weight on rail, and wherein said truck has a lateral stiffness, said lateral stiffness including a lateral swinging stiffness and a stiffness of main spring groups in lateral shear, said stiffnesses being in series, and said lateral swinging stiffness being of lesser magnitude than said lateral shear stiffness when said truck is operating at its rated load limit.

166. (New) The railroad car truck of claim 152 wherein:

said first end of said truck bolster has first, second, third and fourth bolster pockets formed therein;

said first end of said truck bolster seats upon a first spring group, said first spring group being mounted to said first sideframe; and

said first spring group has first, second, third and fourth corner springs; and

said first, second, third, and fourth dampers seat in said first, second third and fourth bolster pockets over said first, second, third and fourth corner springs respectively.

167. (New) The railroad car truck of claim 166 wherein each of said first, second, third and fourth corner springs has another spring nested therewithin.

168. (New) The railroad car truck of claim 166 wherein the first spring group has a width; said truck includes wear plates mounted to said sideframe columns; and said wear plates have a span exceeding the width of said first spring group.

169. (New) The railroad car truck of claim 149 wherein said truck is free of unsprung lateral cross-members.

170. (New) A three piece railroad freight car truck having a transversely extending truck bolster, a pair of side frames mounted at opposite ends of said truck bolster, and resiliently connected thereto, and wheelsets, said sideframes being mounted to said wheelsets at sideframe to wheelset interface assemblies, at least one of said sideframe to wheelset interface assemblies being mounted between a first end of an axle of one of said wheelsets, and a first pedestal of a first of said sideframes, said wheelset to sideframe interface assembly including a first rolling line contact rocker enabling said first sideframe to swing laterally, and a second rolling line contact rocker enabling longitudinal displacement of said first end of said axle to be displaced longitudinally relative to said first sideframe.

171. (New) The three piece railroad freight car truck of claim 170 wherein said first and second rolling line contact rockers are mounted in series with a torsionally compliant member, said torsionally complaint member being compliant to torsional moments applied about a vertical axis.

172. (New) The three piece railroad freight car truck of claim 170 wherein a torsionally compliant member is mounted between said first and second rocker apparatus, said torsionally compliant member being torsionally compliant about a vertical axis.

173. (New) A three piece railroad car truck having a laterally extending truck bolster, said truck bolster having first and second ends; first and second longitudinally extending sideframes resiliently mounted at said first and second ends of said bolster respectively; and said side frames being mounted on wheelsets at sideframe to wheelset mounting interface assemblies; each said end of said truck bolster being carried on a four cornered spring group mounted to a respective one of said sideframes, each said spring group having first, second, third and fourth corner springs; a four cornered damper group being mounted between each said end of said truck bolster and the respective side frame to which that end is mounted, each said damper group including four independently driven friction dampers, each of said friction dampers being mounted above a respective one of said first, second, third and fourth corner springs; and said

sideframe to wheelset mounting interface assemblies accommodating rotational deflection of the wheelsets relative to the sideframes about a predominantly vertical axis.

174. (New) The three piece railroad car truck of claim 173 wherein said truck is free of unsprung lateral cross-members between said sideframes.

175. (New) The three piece railroad car truck of claim 173 wherein said sideframes are mounted to swing laterally.

176. (New) The three piece railroad car truck of claim 175 wherein said sideframe to wheelset mounting interface assemblies include self steering apparatus.

177. (New) A railroad car truck, said truck having a rated load, wherein said truck has:

a bolster extending cross-wise between first and second sideframes, those sideframes being laterally swingingly mounted on wheelsets at sideframe to wheelset interface fittings, said bolster having first and second ends mounted on respective first and second spring groups carried by said first and second sideframes;

an overall lateral response stiffness;

said overall lateral response stiffness including a first component and a second component, said first and second components being in series;

said first component including a lateral pendulum stiffness, k_P, associated with resistance of said sideframes to cross-wise swinging;

said second component including a shear stiffness, k_{SS}, associated with cross-wise shear in said spring groups; and

at said rated load, k_P being smaller than k_{SS}; and

said sideframe to wheelset interface fittings including rolling contact rockers and elastomeric members, said rolling contact rockers being mounted in series with said elastomeric members; said rolling contact rockers being mounted to permit said sideframes to swing cross-wise, and said elastomeric members being mounted to permit said truck to self-steer.

178. (New) A railroad freight car truck having wheelsets mounted in a pair of sideframes, said sideframes having pedestals for receiving said wheelsets, said pedestals having pedestal jaws, said jaws including sideframe pedestal jaw thrust blocks, said wheelsets having bearing adapters mounted thereto for installation between said jaws, said sideframe pedestals having respective pedestal seat members rockingly co-operable with said bearing adapter, and said truck having

biasing members mounted intermediate said jaws and said bearing adapters, said biasing members being mounted to urge said bearing adapter to a centered position relative to said pedestal seat.

179. (New) A kit of parts for retro-fitting a railroad car truck having removable elastomeric members mounted over removable bearing adapters, said kit comprising: a replacement bearing adapter and a mating pedestal seat member, said bearing adapter and said pedestal seat member having co-operable rolling contact rocker elements operable to rock both cross-wise and lengthwise, said seat having a depth of section of greater than 1/2 inches.

180. (New) A railroad car truck having a bolster and a pair of co-operating sideframes mounted on wheelsets for rolling operation along railroad tracks; said truck having rolling contact rockers mounted between said sideframes and said wheelsets to permit lateral swinging of said sideframes; said truck having self steering apparatus; said truck being free of lateral unsprung cross-bracing between said sideframes; said sideframes having a lateral pendulum height, L, measured between a lower location at which gravity loads are passed into the sideframe, and an upper location at said rocker where a vertical reaction is passed into the sideframes, said rocker including a male element having a radius of curvature, r_1, and a ratio of r_1: L is less than 3.

181. (New) The railroad car truck of claim 180 wherein said rocker has a female element in mating engagement with said male element, said female element having a radius of curvature R_1 greater than r_1, and the factor $[(1 / L) / ((1 / r_1) - (1 / R_1))]$ is less than 3.

182. (New) The railroad car truck of claim 180 wherein R_1 is at least 4/3 as large as r_1, and r_1 is greater than 15 inches.

183. (New) The railroad car truck of claim 182 wherein r_1 is between 15 and 45 inches.

184. (New) A sideframe pedestal to axle bearing interface assembly for a three piece railroad car truck, said interface assembly having fittings operable to rock both laterally and longitudinally, and said interface assembly including a bearing assembly mounted to an end of a wheelset axle, said bearing assembly having an outer casing, and said bearing casing having one of (a) one of said rocking fittings defined integrally thereon; and (b) one of said rocking fittings rigidly secured thereto.

185. (New) The sideframe pedestal to axle bearing interface assembly of claim 184 wherein said assembly includes a resilient biasing member.

186. (New) A bearing for mounting to one end of an axle of a wheelset of a three-piece railroad car truck, said bearing having an outer member mounted in a position to permit the end of the axle to rotate relative thereto, and said outer member has a rocking surface formed thereon for engaging a mating rolling contact surface of a pedestal seat of a sideframe of the three piece truck.

187. (New) The bearing of claim 186 wherein said bearing has an axis of rotation coincident with a centerline axis of the axle and said surface has a region of minimum radial distance from said center of rotation and a positive derivative $dr/d\theta$ between said region and points angularly adjacent thereto on either side.

188. (New) A combination of claim 186 and the pedestal seat, wherein said bearing has an axis of rotation, a first location on said rocking surface of said bearing lies radially closer to said axis of rotation than any other location thereon; a first distance, **L** is defined between said axis of rotation and said first location, said rocking surface of said bearing and said rolling contact surface of said pedestal seat each have a radius of curvature and mate in a male and female relationship, one radius of curvature being a male radius of curvature $\mathbf{r_1}$, the other radius of curvature being a female radius of curvature, $\mathbf{R_2}$; $\mathbf{r_1}$ being greater than **L**, $\mathbf{R_2}$ is greater than $\mathbf{r_1}$, and **L**, $\mathbf{r_1}$ and $\mathbf{R_2}$ conform to the formula $\mathbf{L^{-1}} - (\mathbf{r_1}^{-1} - \mathbf{R_2}^{-1}) > 0$.

189. (New) The combination of claim 188 wherein said rocking surface and said rolling contact surface are co-operable to permit self steering.

190. (New) A railroad car truck comprising:

a bolster, first and second sideframes, and first and second wheelsets;

said bolster extending cross-wise between said first and second sideframes;

said bolster having first and second ends, said first and second sideframes being mounted at said first and second ends of said bolster respectively upon respective first and second main spring groups;

said sideframes being mounted yieldingly to yaw relative to said bolster;

said truck having sets first and second sets of yaw resisters mounted at said first and second ends of said bolster, each set of yaw resisters including first and second pairs of yaw resisters mounted such that when said sideframes are subject to yaw deflection said pairs of yaw resisters provide restorative moment couples tending to urge said

sideframes toward a square condition relative to said bolster, said restorative moment couples being a function of magnitude of yaw deflection;

said sideframes having respective sideframe pedestals, and said first and second wheelsets being mounted cross-wise between respective pedestals of said first and second sideframes, said wheelsets being self-steeringly mounted in said pedestals.

191. (New) The railroad car truck of claim 190 wherein self-steering of said wheelsets is governed by a force deflection characteristic that is a function of vertical load passed between said wheelsets and said sideframe pedestals.

192. (New) The railroad car truck of claim 190 wherein:

said truck has a rated gross weight on rail;

said truck has an overall response to lateral perturbations that includes a first component of lateral stiffness and a second component of lateral stiffness, said first component of lateral stiffness being associate with side-ways pendulum swinging of said sideframes, said second component of lateral stiffness being associate with lateral shear in said main spring groups; and,

at said rated gross weight on rail, said first component of lateral stiffness being softer than said second component of lateral stiffness.

193. (New) The railroad car truck of claim 190 wherein said truck has bolster gibs mounted to said bolster to bracket each of said first and second sideframes, said bolster gibs defining a limited range of lateral translation of said bolster relative to said sideframes, and said limited range is at least as great as ¾" to either side of a neutral position.

194. (New) The railroad car truck of claim 190 wherein:

self-steering of said wheelsets is governed by a force deflection characteristic that is a function of vertical load passed between said wheelsets and said sideframe pedestals;

said truck has a rated gross weight on rail;

said truck has an overall response to lateral perturbations that includes a first component of lateral stiffness and a second component of lateral stiffness, said first component of lateral stiffness being associate with side-ways pendulum swinging of said sideframes, said second component of lateral stiffness being associate with lateral shear in said main spring groups;

at said rated gross weight on rail said first component of lateral stiffness being softer than said second component of lateral stiffness; and

said truck has bolster gibs mounted to said bolster to bracket each of said first and second sideframes, said bolster gibs defining a limited range of lateral translation of said bolster relative to said sideframes, and said limited range is at least as great as ¾" to either side of a neutral position.